

- c. correlating information about the entrant to said at least one position of the entrant.

19. (Twice Amended) A system of controlling functions in response to position information determined by ultra wideband impulse radio techniques, comprising:  
an ultra wideband impulse radio positioning device; and  
an interface with a controller, said controller acting upon a function based upon the position information, a predetermined area defined by a plurality of fixed ultra wideband impulse radios, and predetermined position parameters.

### ***Remarks***

Reconsideration of the application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-25 are pending in the application. These changes are believed to introduce no new matter, and their entry is respectfully requested. Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

### ***Summary of claim Rejections***

Claims 1-25 are rejected under 35 U.S.C 103(a) as being unpatentable over Fullerton et al [US 5,677,927] in view of Schlager et al [US 5,963,130].

***Summary of Amendment***

Applicants have amended claims 1 and 19 to further clarify that the predetermined area is defined by a plurality of fixed ultra wideband impulse radios. Support for the proposed amendments can be found at p.25, lines 3-5 of the specification, which discloses defining a predetermined area using a plurality of fixed UWB transceivers.

***Remarks regarding §103 rejection***

To reject all claims 1-25 under 35 U.S.C. 103(a), the Examiner relies on Fullerton in view of Schlager et al.

In rejecting the aforementioned claims under 35 U.S.C. 103(a), the examiner bears the initial burden of presenting a prima facie case of obviousness. The assertion of obviousness must be reasonable in light of what the prior art substantively shows and teaches a person of ordinary skill in that art. In re Oetiker, 9 77 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). Only if that burden is met, does the burden of going forward with evidence or argument shift to the applicant.

For the reasons articulated below, the applicant believes that in the present case, the Examiner has not met this burden. A prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." In re

Bell, 991 F.2d 781, 782, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993), quoting *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976).

Further, the mere fact that the prior art may be modified in the manner suggested by the examiner neither makes the modification *prima facie* obvious nor obvious unless the prior art suggested the desirability of the modification. In *re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992). If the examiner fails to establish a *prima facie* case, the rejection is improper and will be overturned. In *re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

Schlager discloses a system that determines distance (or range) based on “field strength of the base station 14 transmitted signal when received at the remote unit” which is “inversely proportional to the fourth power (approximately) of the distance between the two units” (see col. 6, lines 39-46). A predetermined limit (or threshold) is established such that when the magnitude of the field strength is below the limit, a control signal is generated (see col. 6, lines 24-27; col. 9, lines 18-21; col. 11, lines 60-67; col. 12, lines 22-33). In Schlager, the transmitted signal is an RF carrier (see col. 7, lines 52-54), which has a field strength that is orders of magnitude higher than that of a UWB signal.

Schlager also discloses an embodiment where the remote unit has a GPS receiver that determines its position and communicates it to the base station (see col. 10, lines 39-65). The Examiner identifies the invisible fence embodiments described in col. 13, lines 21-23 to show Schlager discloses determining at least one position within a predetermined area. However, all that is disclosed here is a navigational receiver for which only a GPS receiver is described in the application. Thus, clearly

the use of a GPS receiver is certainly not determination of position using UWB impulse radio techniques. Further, determining position by field strength is significantly different than determining position by UWB means and would indeed tend to teach away from using UWB, as UWB would be a potential alternative methodology and a superior competitor. Thus, it is not obvious to replace Schlager's use of a GPS receiver receiving carrier-based information with UWB.

Further, and as articulated in the second office action, as the Examiner is aware, in order to combine Schlager and Fullerton there should be a suggestion or teaching of combining the references to come up with the present invention. The applicant is unaware of any such suggestion or teaching combining the positioning capabilities of Schlager and the ultra wideband wireless techniques of Fullerton. Again, the applicant reiterates the affidavit from Fullerton himself articulating the non-obvious nature of the present invention. There can be no greater evidence of non-obviousness than the inventor of one of the cited references himself stating that he was not contemplating the present invention nor was it taught anywhere to combine the references. Further, Applicant submits Schlager will not likely even be aware of ultra wideband technology given the cutting edge nature of the technology. Thus, it would be impossible for him to have contemplated the technology of the present invention used with the information taught in the cited Schlager reference.

The Examiner feels it would be obvious to combine the positioning capabilities of Schlager with the UWB communications of Fullerton. However, combining the two systems into the present invention misses one of the primary advantages of the present invention: to be able to communicate and determine

position information within one wireless technology and system. If the applicants were to combine Schlager and Fullerton, they would need to have a Fullerton UWB communication system to communicate the position information and a non-UWB system (carrier based) system to determine the position information. To do this would at least require some type of interface between a UWB system and carrier based system. Applicant's can find no such teaching or suggestion in any references cited or any references they are aware of. Even if an interface between the two systems could be developed, the cost of implementing a system would be cost prohibitive at present.

Further, the accuracy of the position determination using a carrier wave of Schlager reference is far inferior to the UWB technology and, thus, would not be advantageous to use with the present invention.

### ***Conclusion***

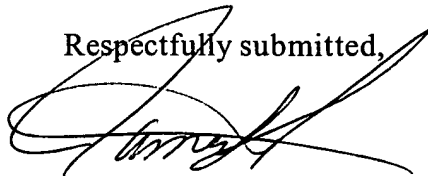
All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants have modified the claims to clarify that the area is defined by reference impulse radios, to wit: "within a predetermined area defined by a plurality of fixed ultra wideband impulse radios". Further, Applicants have articulated the differences between the method of position determination of Schlager and the position determination by UWB means of the present invention. Applicants have further demonstrated the difficulty of combining the position determination of Schlager with the communication by UWB

of the present invention and have related that the ability to combine position determination and communication in one technology is one of the primary advantages of the present invention. Lastly, Applicants reiterate the affidavit submitted by a pioneering inventor of UWB technology and primary inventor of the cited reference to show that the present invention would not be obvious to him.

Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reasons, that personal communication will expedite prosecution of this application the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,



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